A Flexible Security Architecture for Ubiquitous Mobile & Wearable Systems

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Overview

- Ubiquitous Computing
- Mobile Ad-Hoc Networks (MANET)
- User Interactions with Wearable Systems
- Security & Role-Based Access Control
- Wearable Systems Security Issues
- Intrusion Detection in Wireless Networks
- Questions & Comments

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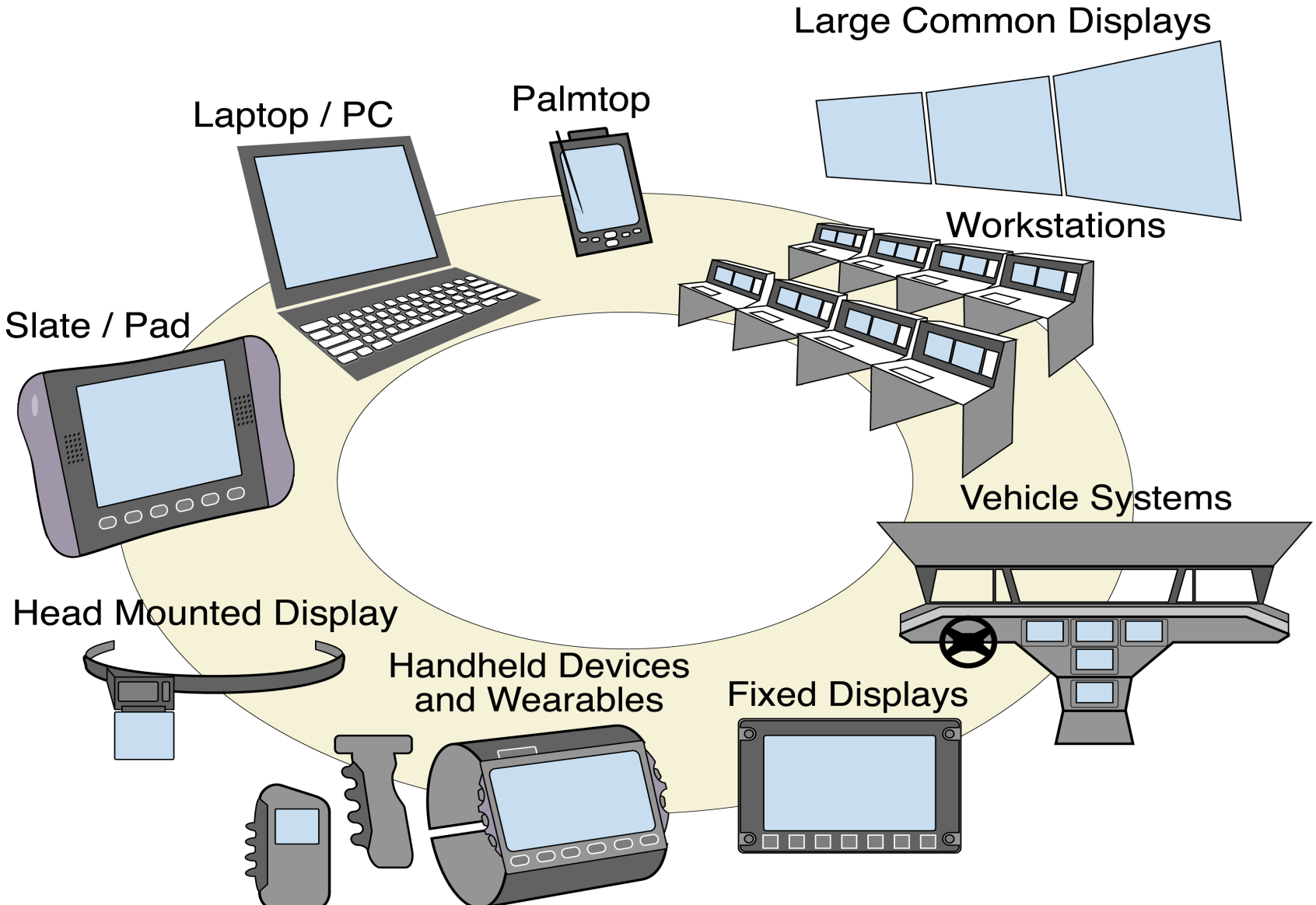
Ubiquitous Computing



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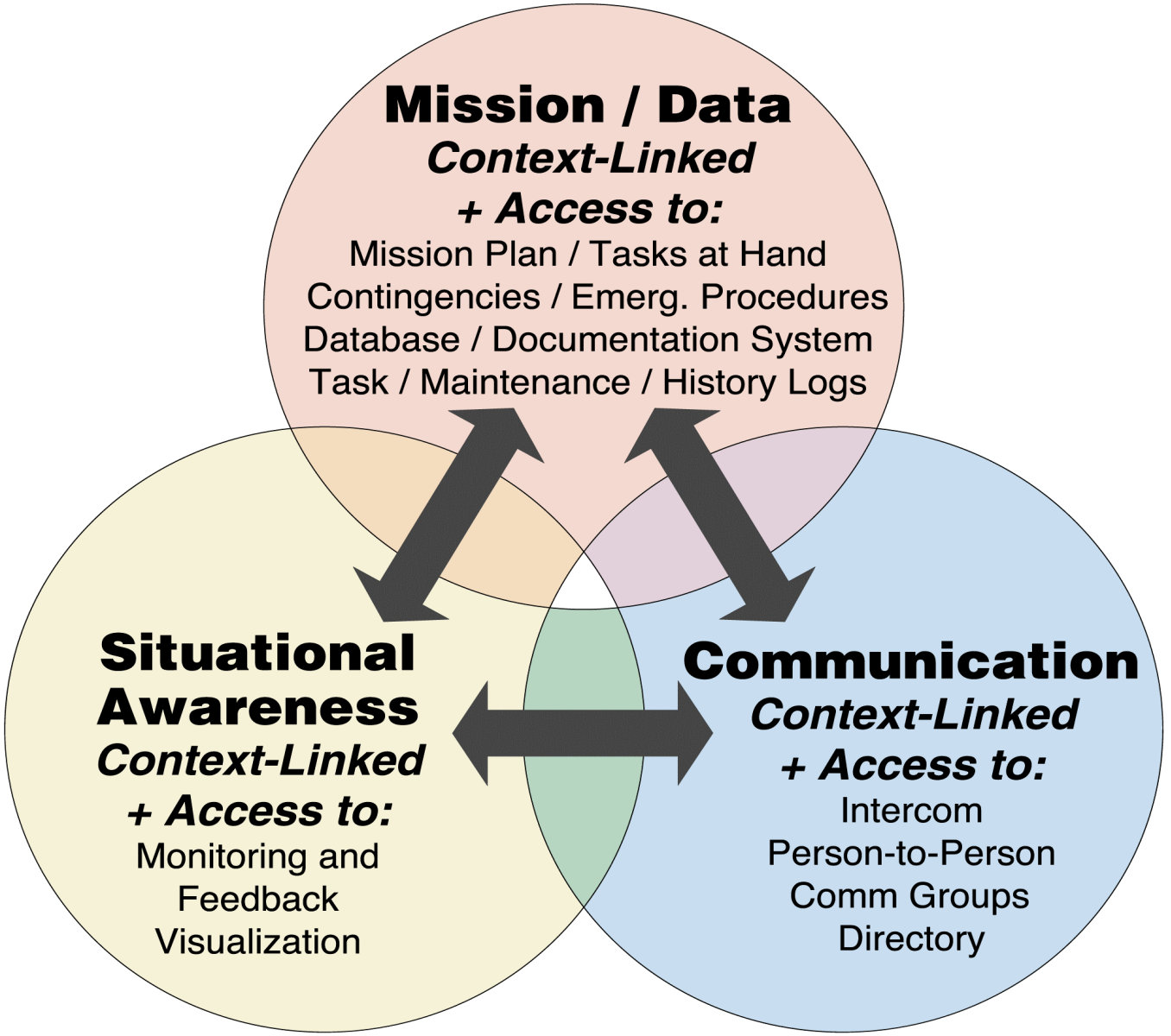
Contextual Cross-Links



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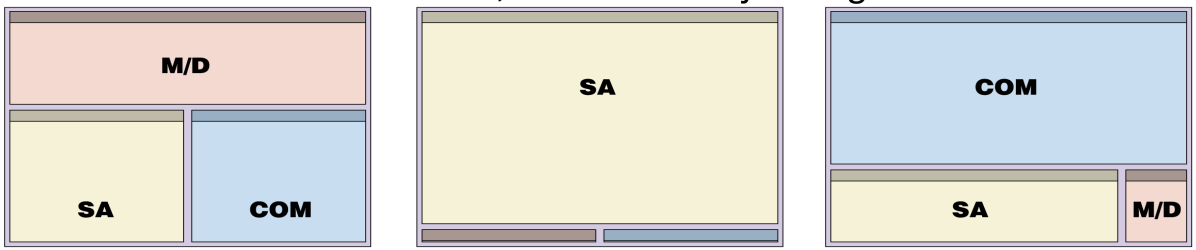
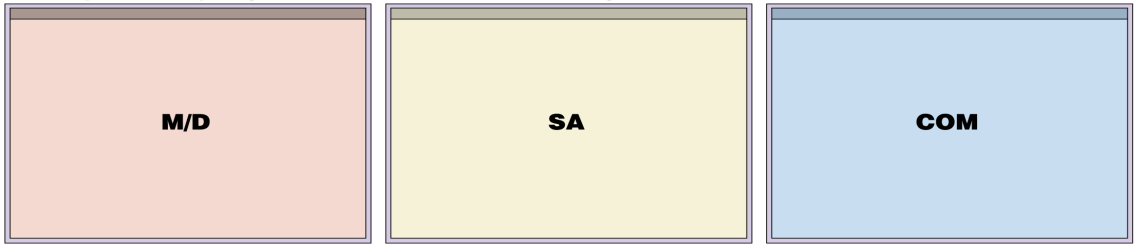
Flexible Interactional Architecture

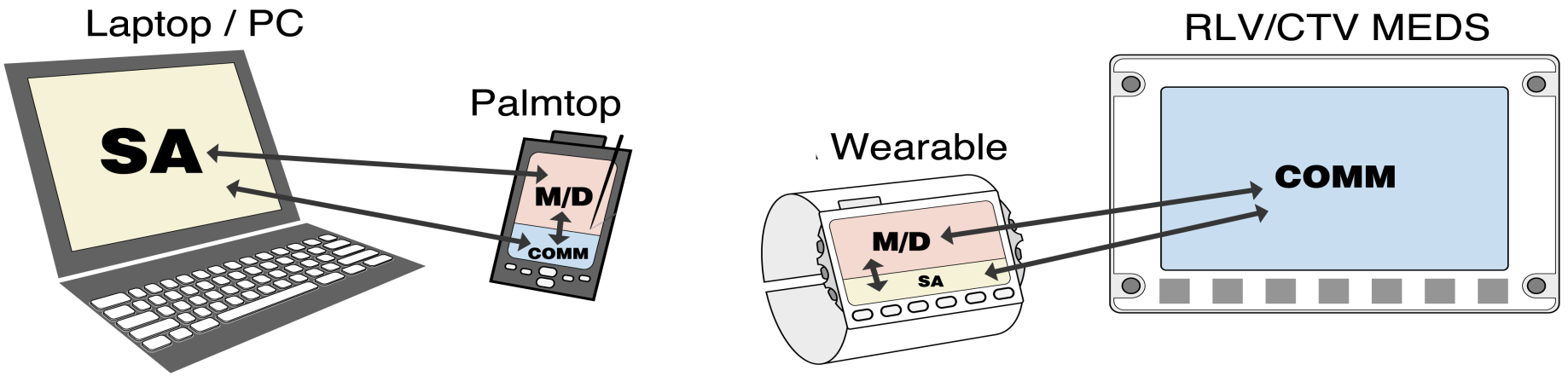
Screen Divisions are not fixed, but are flexibly configurable



Multiple Displays can be Contextually Linked



Devices Can Be Linked On The Fly To Link Up Contextually



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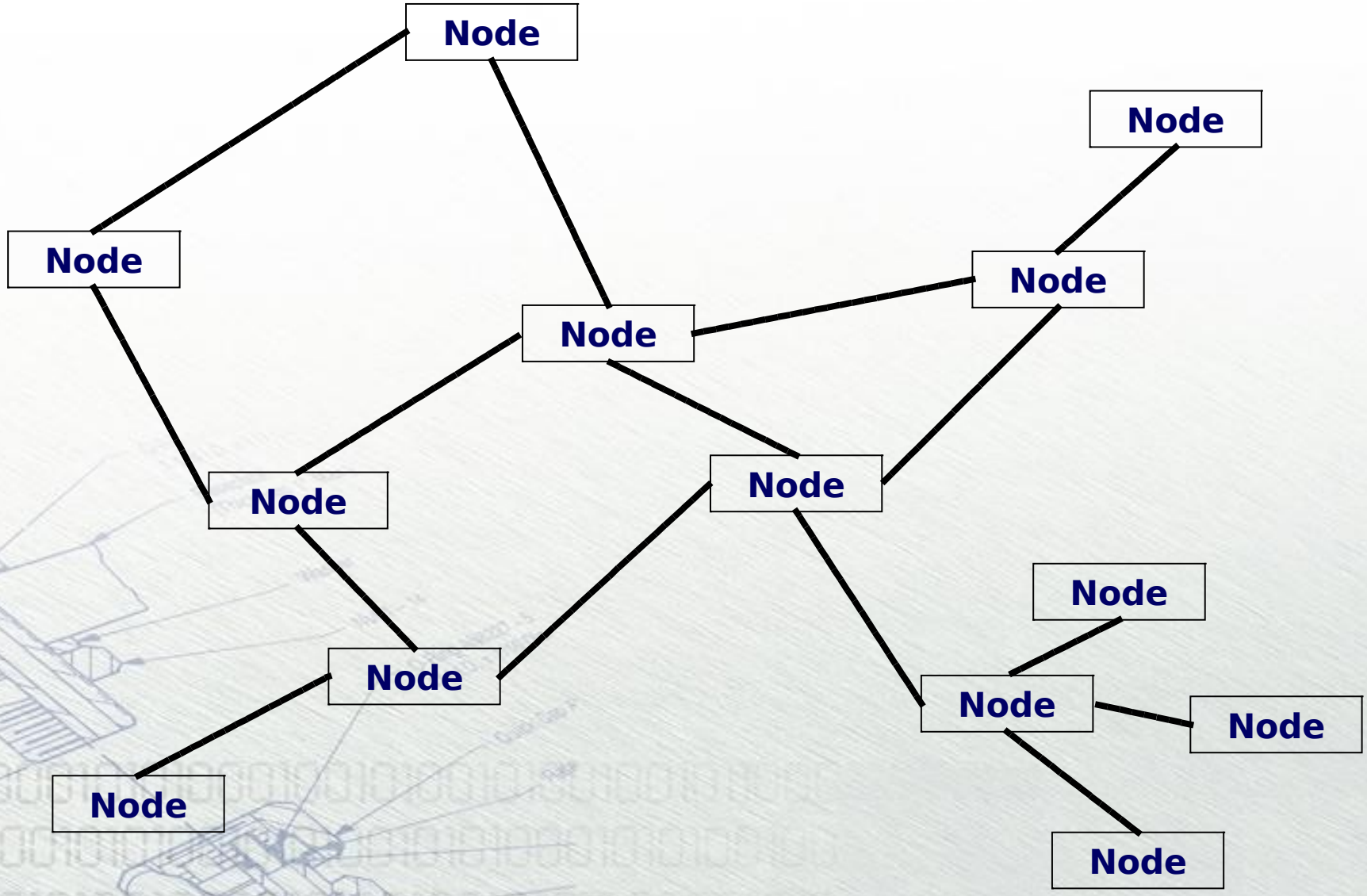
Mobile Ad-hoc Networks (MANET)



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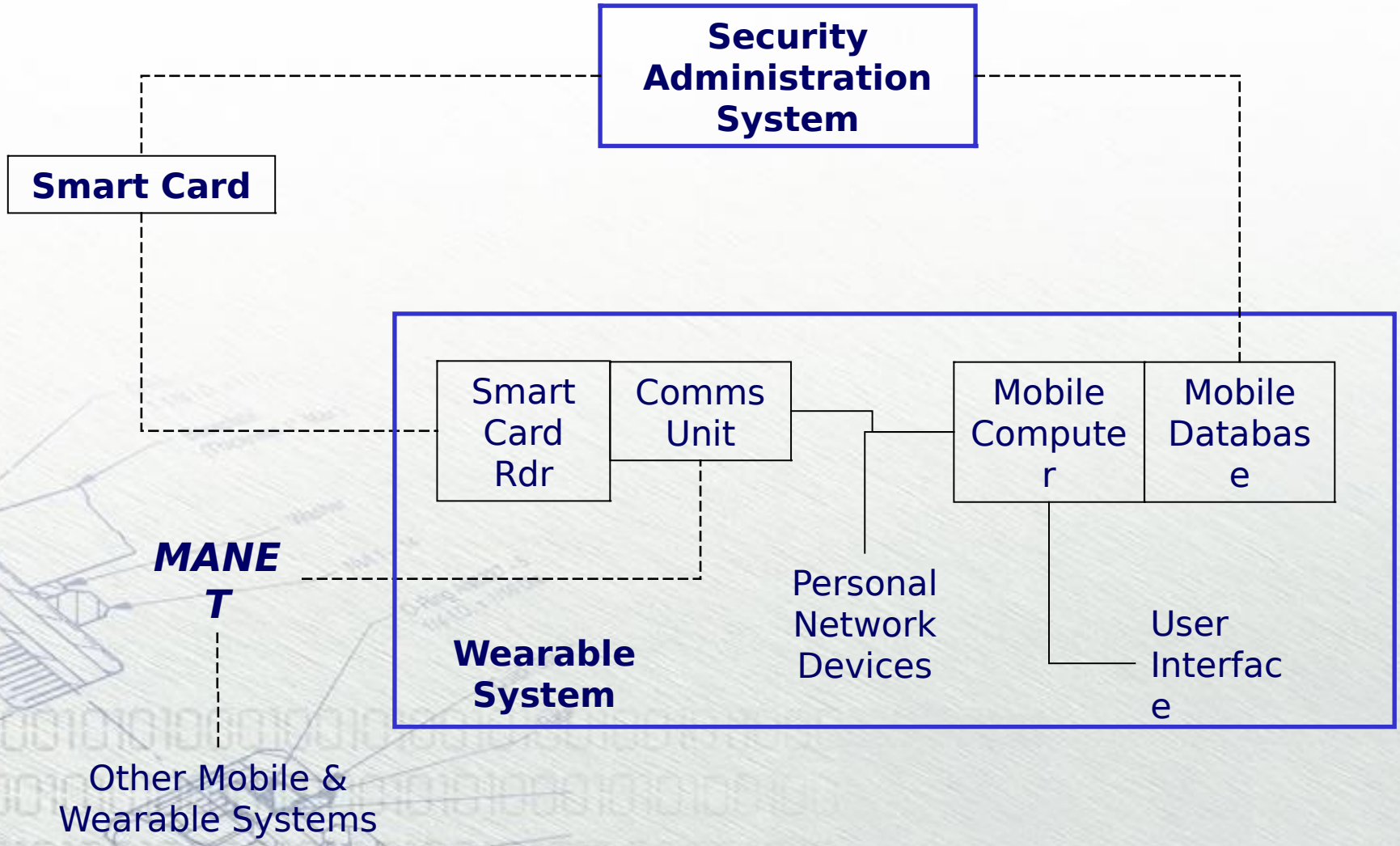
Wearable Systems Individual Architecture



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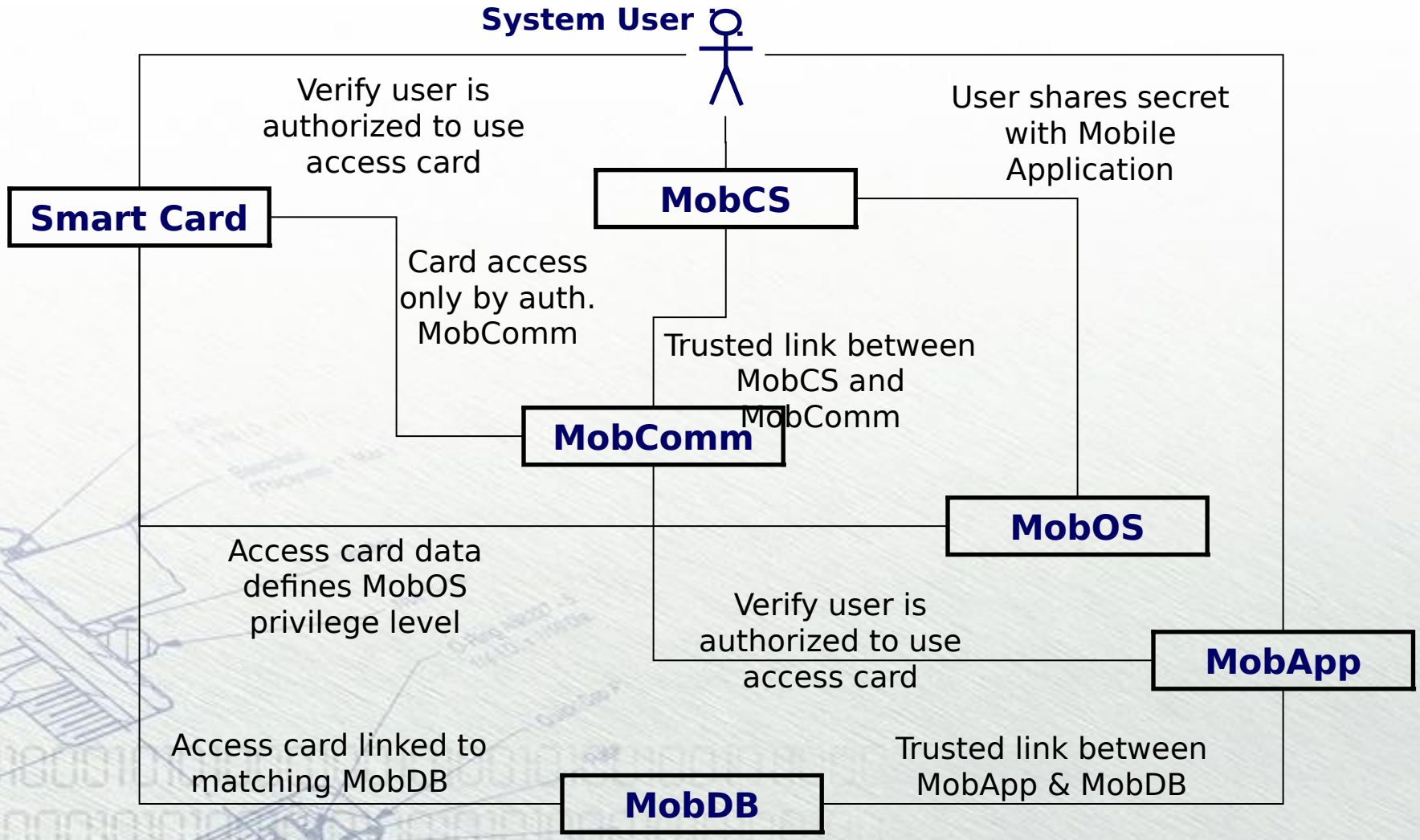
Security Issues on Wearable Systems


System User
Verify user is authorized to use access card
User shares secret with Mobile Application
Smart Card
MobCS
Card access only by auth. MobComm
Trusted link between MobCS and MobComm
MobComm
MobOS
Access card data defines MobOS privilege level
Verify user is authorized to use access card
MobApp
Access card linked to matching MobDB
Trusted link between MobApp & MobDB
MobDB

Patent Pending

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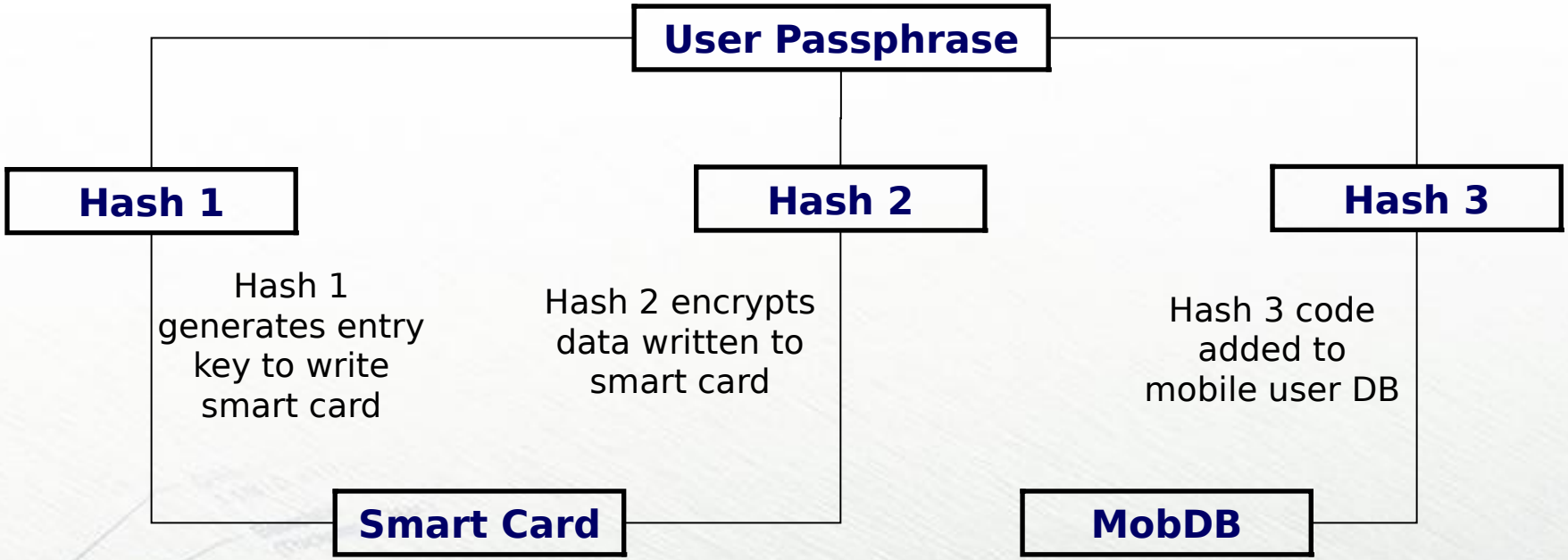
User Passphrase Management


User Passphrase
Hash 1
Hash 2
Hash 3
Hash 1 generates entry key to write smart card
Hash 2 encrypts data written to smart card
Hash 3 code added to mobile user DB
Smart Card
MobDB

- **Security Administration System**
  - User provides personal secret data (“passphrase”)
  - Derive two elements to generate card write & encrypt keys
  - Additional elements for inclusion in mobile user database

Patent Pending

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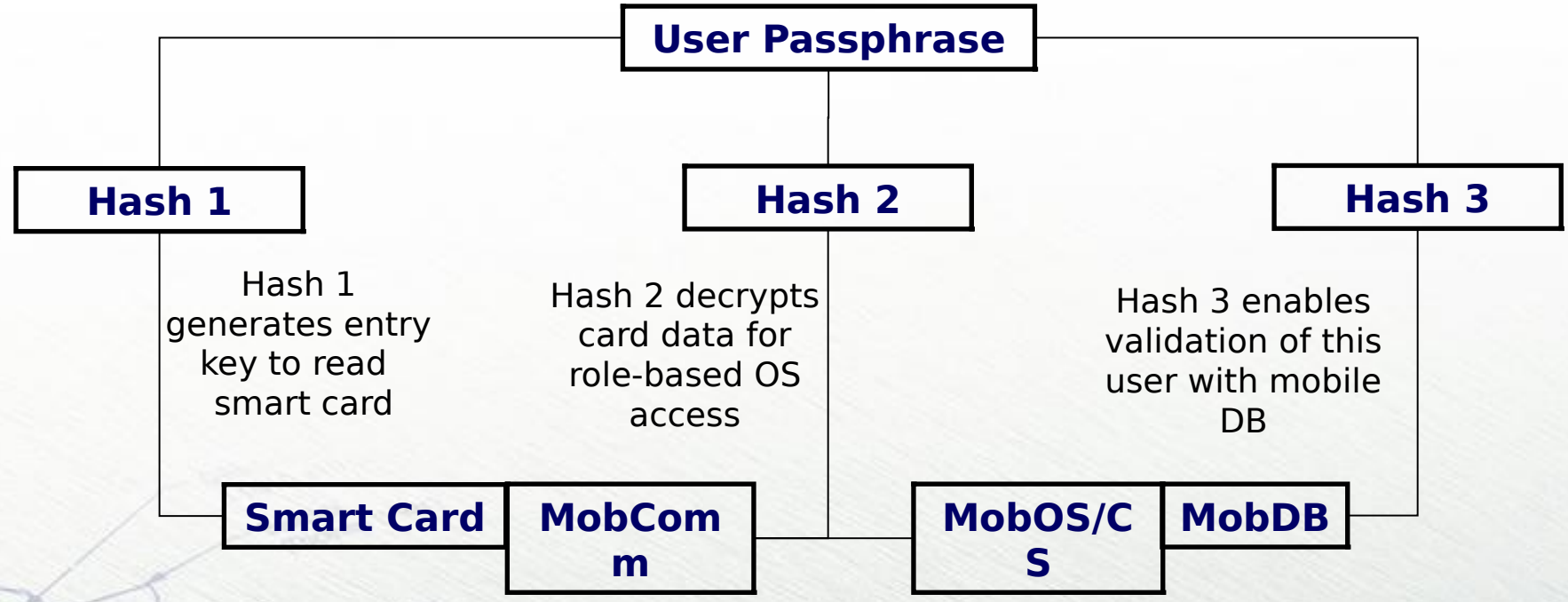
Passphrase Usage Process



- **Mobile Wearable System**
  - User provides passphrase and presents smart card
  - Role-based card data provides access to MobOS & MobCS
  - Secret shared with mobile application and database

Patent Pending

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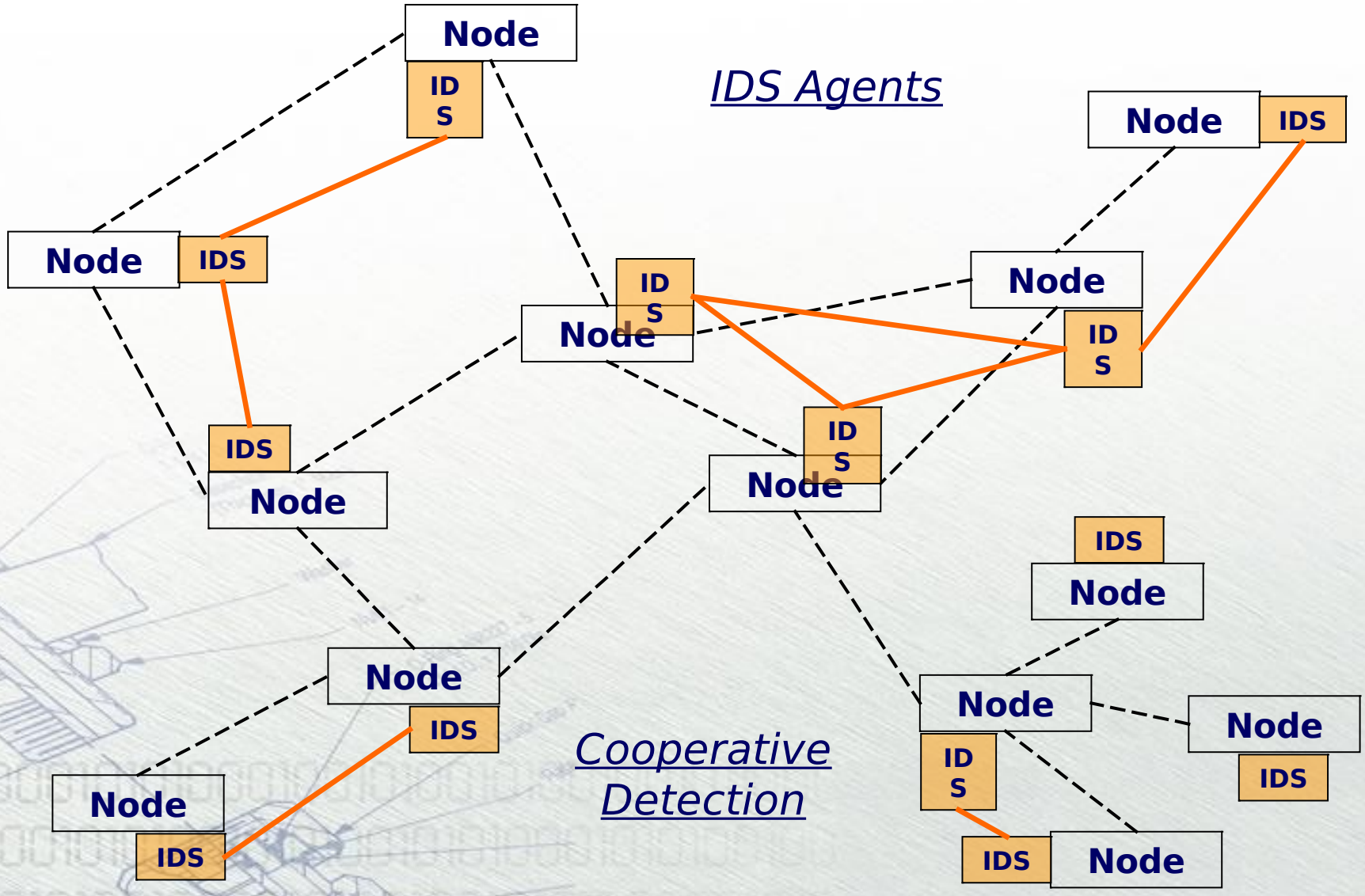
MANET Security



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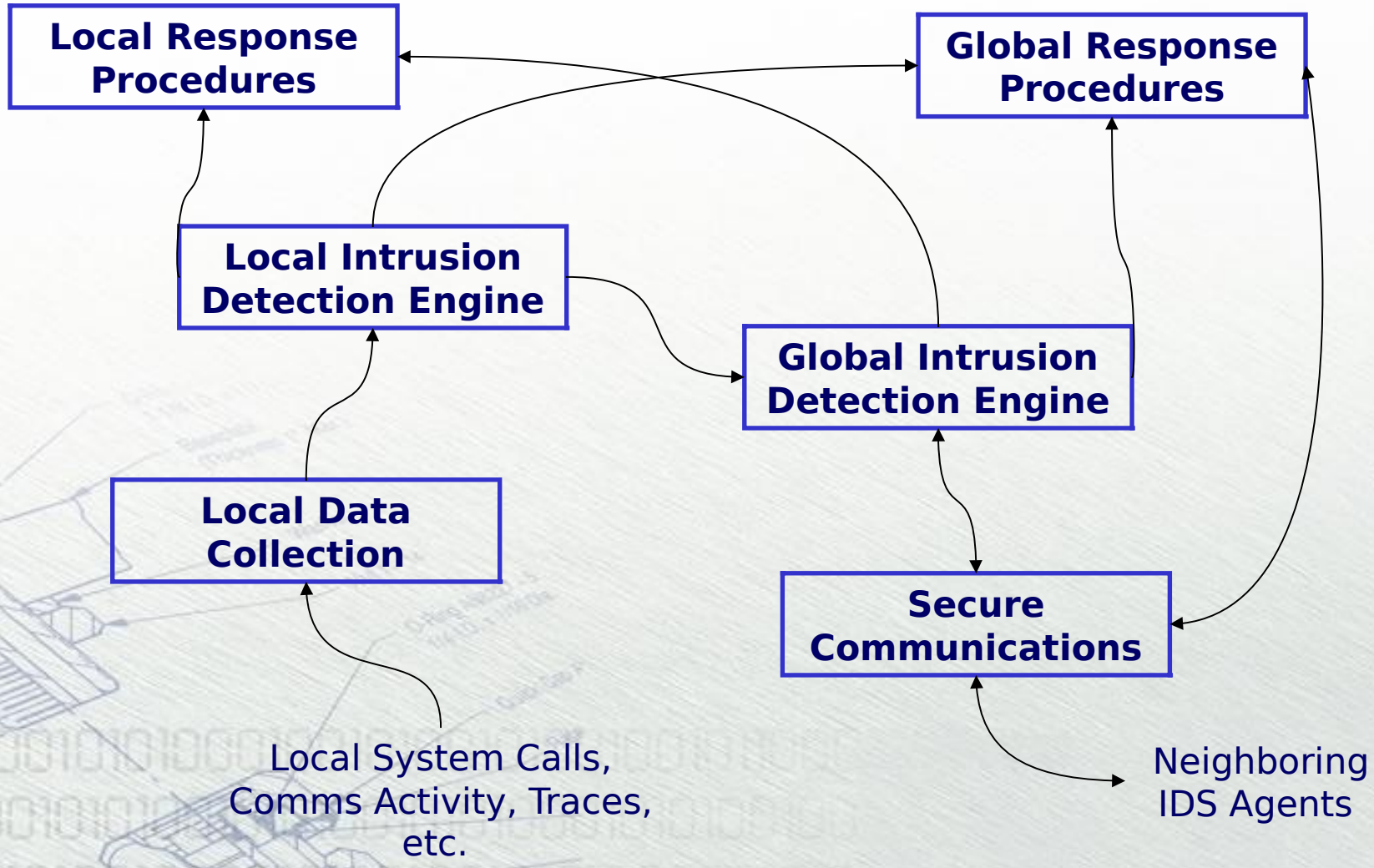
Intrusion Detection System (IDA) Agent



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For Additional Information.....

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